

Student Pharmacist Led Fish Oil Deprescribing Initiative at a Veterans Affairs Hospital and Rural Clinics

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Abstract

Background: Polypharmacy impacts one-third of older adults and has been shown to lead to adverse health effects. One contributor to polypharmacy includes omega-3 fatty acid (fish oil) due to the lack of evidence supporting clinical benefit. Pharmacists can identify and reduce polypharmacy, inspiring this student led deprescribing initiative to introduce a standard of care process for deprescribing fish oil.

Purpose/Objectives: The overall objectives of this evaluation are to assess the need for a fish oil deprescribing process, to analyze the role of student pharmacists in deprescribing, and to evaluate the effectiveness of a fish oil deprescribing service.

Methods: This project integrated three doctor of pharmacy students in their third year of pharmacy school who were enrolled in a yearlong class about improving healthcare for rural populations and the quality improvement research process. Four primary care clinic patient panels who were prescribed fish oil were assessed. Chart reviews were conducted, and patients were contacted to deprescribe their fish oil by the student and offer statin or lipid therapy modifications, if applicable.

Results: A generated report identified 106 patients who had active prescriptions for fish oil. After application of exclusion criteria, 68 patients were included in the evaluation. A total of 76.2% of patients accepted at least one therapy modification offered by the pharmacy student.

Conclusion: This evaluation demonstrates the positive impact of the integration of student pharmacists for deprescribing in a primary care setting. Opportunities exist to further explore student pharmacist roles within ambulatory care clinic models.

Key words: fish oil, omega-3, deprescribing, polypharmacy, student pharmacist, pharmacy, ambulatory care, primary care, rural

Background

Polypharmacy is defined as the use of five or more medications to treat chronic conditions and impacts one-third of older adults aged 60-79 in the United States (US).^{1,2} The prevalence of polypharmacy increased 6.6% from 1999 to 2012.³ Polypharmacy results in increased mortality and adverse events, decreased cognition, medication non-adherence, and more than doubles health care expenditures from an average of \$8,815 to \$19,068.⁴⁻⁷ Deprescribing and optimizing medications can reduce these risks associated with polypharmacy.⁸

Omega-3 fatty acid, also known as fish oil, has been used for conditions relating to inflammation, brain and eye health, and heart disease such as heart attack and stroke.⁹ Current literature lacks evidence for the efficacy of fish oil for many of the aforementioned disease states. Despite the lack of evidence, 7.8% of adults (18.8 million) and 1.1% of patients ages 4 to 17 (664,000) had taken a fish oil supplement in the last 30 days per the 2012 US National Health Interview Survey.⁹ In

addition to the 2 billion dollars per year spent on fish oil, there is data that shows omega-3s can increase the risk of bleeding when combined with medications including, but not limited to, anticoagulants, antiplatelets, NSAIDs, and SSRIs.^{10,11} The 2018 ACC/AHA Blood Cholesterol Guidelines only describe use of fish oil in the management of high triglyceride (TG) levels ($\geq 500\text{mg/dL}$) despite optimized statin therapy. There is potential for deprescribing fish oil due to its impacts on polypharmacy, lack of clinical benefit, and drug interactions that all contribute to its inappropriate use.¹¹

Pharmacists have been shown to reduce polypharmacy within primary care teams with a call to action for greater integration of pharmacists practicing within primary care.¹² Prior literature has explored interprofessional teams deprescribing medications such as proton pump inhibitors, sedative-hypnotics, and anticholinergics¹³⁻¹⁵. Pharmacist involvement within primary care teams has shown to increase patient access, encourage proper medication use, improve quality of care, and decrease physician workload.¹⁶ While pharmacist integration is impactful, it is difficult to sustain a pharmacist's involvement due to limited time and resources along with lack of reimbursement.¹⁷

Approaches are needed to integrate pharmacists within primary care teams as an opportunity to promote appropriate medication use. The current evaluation aimed to (1) assess the

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need for a fish oil deprescribing process, (2) analyze the role of student pharmacists in deprescribing, and (3) evaluate the effectiveness of a fish oil deprescribing service.

This evaluation explores integration of student pharmacists to combat polypharmacy through a unique learning experience with primary care pharmacist mentorship. The current evaluation, to the authors' knowledge, is the first time the role of student pharmacists has been assessed in deprescribing fish oil to further reduce polypharmacy.

Methods

A prospective evaluation was completed by three third-year student pharmacists (P3) at the University of Wisconsin-Madison School of Pharmacy enrolled in the Rural Pharmacy Practice Program (RPPP) in the Fall of 2021 to the Spring of 2023. The RPPP aims to prepare P3 students as practice innovators in rural healthcare settings and positions students with faculty and pharmacy mentors to design a healthcare service.¹⁸ As part of this program, students completed a year-long course focused on leading change in rural healthcare that emphasizes the intersection between project management and quality improvement in rural settings.¹⁹

The students involved in this evaluation were assigned one RPPP faculty mentor and two William S. Middleton Memorial Veterans Affairs hospital (VA) pharmacist preceptors with over 10 years of experience in VA primary care. Faculty mentors supported students in the development of project aims and deliverables, while pharmacist preceptors supported students in completing patient contact at the VA medical center. Through prior discussions, it was hypothesized by preceptors that many patients were taking fish oil with an unclear indication, providing an opportunity for deprescribing. Within the Madison area VA, no fish oil deprescribing process integrating pharmacy students existed. This led to the involvement of students to design and implement a deprescribing service for fish oil.

Students led bi-weekly meetings with faculty mentors and pharmacist preceptors to discuss project goals and implementation strategies. Students measured time spent in and outside of the clinic, including time spent on patient calls to understand the pharmacist time saved by integrating P3 students into this process.

Under direct mentorship, the P3 students completed a needs assessment in September of 2021 that focused on the appropriate place in therapy for fish oil. Students attended a two-hour training led by a pharmacist resident outlining key considerations of cholesterol management and reviewed appropriate fish oil utilization. Additionally, the 2018 ACC/AHA Management of Blood Cholesterol guideline was utilized to guide therapy decisions. A literature review was conducted

utilizing PubMed to search for deprescribing processes and frameworks. During background research, P3 students received an institution badge for VA clinics and computer software.

This deprescribing service was completed using a 4-step process that included (1) patient identification and inclusion, (2) data collection, (3) patient contact and (4) documentation. All steps were completed by students under the supervision of pharmacist mentors.

Patient Identification and Inclusion

A report was populated in September 2021 by the pharmacist preceptors using the VA Corporate Data Warehouse (CDW), a database which houses electronic health record data that can be retrieved for report generation. Patients from four primary care provider (PCP) panels were queried. Patients were included in the evaluation if they had active fish oil prescriptions in July of 2021, many without a clear indication. Patients were excluded from deprescribing if the fish oil was prescribed by a specialist (cardiologist, nutritionist, etc.), TG \geq 500 mg/dL, no longer under preceptor care, and/or has already discontinued fish oil prior to chart review.

Students created a stepwise deprescribing process identifying clinical questions to ask patients to aid in developing appropriate therapy management decisions. Questions were established and included through communication by pharmacist preceptors and existing VA deprescribing protocols.¹⁴ This led to the creation of a standardized deprescribing process that was modified to fit the needs of fish oil deprescribing.

Eligible patients underwent chart review by the P3 students using the VA electronic health record (EHR) system. A review of clinical values involved in cardiovascular health management were researched by students and discussed with the preceptors to be included in data collection. A de-identified data collection form, created by students, was utilized and stored internally in the VA system to organize data capture. Specific information gathered from chart reviews included age, gender, race, rurality, LDL, HDL, TG, TC, LFTs, total number of medications, statin therapy use, statin therapy classification (per the 2018 ACC/AHA Blood Cholesterol guideline), and concurrent anticoagulation therapy (Table 1). Patients' 10-year ASCVD risk was calculated when able based on available data in the EHR.

Patient Contact

A pre-developed call script was adapted to fit the needs and purpose of this evaluation to initiate the conversation, then the remaining conversation contained additional therapy recommendations, if applicable (Figure 1). In addition, a protocol was developed to allow a maximum of two patient outreach attempts, and if after the second call attempt students were still unable to reach the patient, a letter

informing the patient of the reason for the calls was sent to their residence.

P3 students contacted patients by telephone and completed a focused medication therapy review utilizing background information and clinical guidelines. Students critically assessed the patient's current medication therapy and recommendations were presented to their pharmacist preceptor. Therapy recommendations included fish oil deprescribing, statin initiation, and/or statin intensification. Once the therapy recommendation was agreed upon, an unscheduled call attempt was made and documented by the student.

Documentation

Post-call documentation in the data collection form included number of calls answered, confirmation of current fish oil use, changes in therapy offered and accepted, and call length. Additionally, patients who denied therapy interventions had their self-identified barriers recorded. If a patient was initiated on a statin or modified their existing statin therapy, follow-up labs and telehealth appointments were scheduled for 3 months after the date of the patient interaction. After the telehealth interaction, students entered medication orders and labs as appropriate, then entered formal documentation in subjective, objective, assessment and plan (SOAP) note format into the patient's EHR. The note, medication orders, and lab orders were co-signed by the preceptor.

Results

A total of 106 patients were initially identified from the patient panels. After applying exclusion criteria, 38 patients were removed. Of the 68 patients included in the analysis, 100% were males, 95.6% were caucasian, and the average age was 64-years-old.

Medication use of included patients ($n = 68$) was analyzed to determine the extent of polypharmacy. This evaluation found that 9 patients (13.2%) were taking 1-4 medications, 16 patients (23.5%) were taking 5-9 medications, 31 patients (45.6%) were taking 10-19 medications, and 12 patients (17.6%) were taking ≥ 20 medications. Polypharmacy (≥ 5 medications) was present in 86.8% of the included patient population.

After attempting to contact the 68 patients, 63 patients (92.6%) were contacted successfully and participated in the deprescribing program, and 5 patients (7.4%) were sent a letter. Of the 63 patients contacted, therapy regimens were changed for 48 patients (76.2%) (Table 2).

The students estimated the time spent in and out of the clinic to evaluate time saved for pharmacist preceptors. A total of 110 hours were dedicated by the three P3 students over a five-month period. This included 100 hours in the clinic, and 10 1-

hour long preceptor and faculty mentor meetings. The average time spent on a single patient (from chart review through documentation) was around 20 minutes and phone calls averaged 6.9 minutes. Overall, each P3 student spent 36.7 hours on this evaluation.

Discussion

The literature has not fully described the integration of student pharmacists to deprescribe fish oil therapy. This evaluation demonstrated the impact of student integration within a deprescribing process in primary care to reduce polypharmacy, evidenced by an acceptance rate of $>75\%$. This result is consistent with similar deprescribing services, with 66% and 83% patients accepting therapy changes of sedative-hypnotics and PPIs, respectively.^{13,14}

The high prevalence of polypharmacy found in this population supports current medication use trends reflected in literature.³ Additionally, the need for the student-led fish oil deprescribing service was supported through analysis of laboratory findings, including TG values and doses of fish oil. The average TG value was markedly lower than the 500 mg/dL minimum threshold to indicate the use of fish oil while on appropriate statin therapy. In addition, the average fish oil total daily dose was well below therapeutic doses of greater or equal to 4,000 mg daily, with 8.8% of patients at therapeutic doses.

P3 students faced barriers to both deprescribing and implementation of new therapies. A common barrier to deprescribing fish oil was its perceived benefit for cholesterol or well-being such as joint mobility, diet, and brain health. Barriers to implementation included hesitancy of starting a new medication, familiarity and comfort with current regimen, and patients wanting their primary care provider's (PCP) input prior to therapy change. Additionally, several patients were not familiar with pharmacists in the provider role, as the pharmacist role has expanded over recent years. Many pharmacists are taking the responsibility of adjusting therapy regimens independently, similar to other advanced practice providers.

This evaluation demonstrated a model of care delivery that integrated students within the existing primary care structure to deprescribe a therapy with minimal efficacy benefit. Opportunities exist for future exploration of student pharmacists within primary care to conduct similar population health services both within and outside the VA healthcare system.

Student pharmacists are eager to develop clinical decision-making skills, and they are suited for analyzing complex medication regimens and assessing for potential inappropriate therapies, including fish oil. Students get the opportunity to apply the knowledge they learn in class while having real world experience under the supervision of a pharmacist. This

evaluation demonstrated the unique role that schools and colleges of pharmacy have in positioning students to serve alongside clinic teams prior to their Advanced Pharmacy Practice Experience (APPE) year and the impact P3 students can have on elevating pharmacy practice and enhancing patient outcomes.

This evaluation contains some limitations. The vast majority of the patient population in this evaluation was Caucasian males, which may lead to poor generalizability to both individual VA organizations and the general population. Another limitation includes relatively small population size and there were a number of patients who were unable to be reached within the study period.

Conclusion

The Student Pharmacist Led Fish Oil Deprescribing Initiative demonstrates the positive impact of the integration of student pharmacists in an ambulatory care setting focused on fish oil deprescribing, particularly the opportunity to optimize cholesterol therapy to decrease the burden of cardiovascular disease.

This evaluation adds to the limited literature on deprescribing, provides a standardized deprescribing process involving student pharmacists, and shows the impact students have on this process. Opportunities exist to further explore student pharmacist roles within ambulatory care clinic models, and this process could further be implemented for additional medication classes to fight polypharmacy and promote safe medication use.

Integration of student pharmacists into ambulatory care settings alleviates primary care pharmacists' workload. This allows pharmacists to focus on additional patient care duties and provide services that would otherwise go unfinished. This collaboration promotes the expansion of the pharmacist role to new and adaptive responsibilities.

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Table 1. Baseline Characteristics		
Patient Characteristics (n = 68)		
	Average	Units
Age	64.1	years
Lab Values		
LDL	89.4	mg/dL
HDL	44.1	mg/dL
TG	177.3	mg/dL
TC	167.8	mg/dL
AST	23.9	U/L
ALT	33.9	U/L
Alk Phos	81.2	U/L
Total Bilirubin	0.8	mg/dL
Other		
Total Number of Medications	12.7	medications
Average Fish Oil Dose	1955.9	mg/day
	Count	%
Gender		
Males	68	100%
Females	0	0%
Race		
Caucasian	65	95.6%
African American	2	2.9%
Alaskan Native/American Indian	1	1.5%
Rurality*		
Rural	38	55.9%
Urban	29	42.6%
Undefined	1	1.5%
Summary of Patient Therapy (n = 68)		
	Number of Patients	%
On Statin and Fish Oil Therapy	41	60.3
Patients on Low Intensity Statins	5	7.4
Patients on Moderate Intensity Statins	15	22.1
Patients on High Intensity Statins	21	30.9
Patients not on Statin Therapy (Fish Oil Only)	27	39.7
Number of Patients Taking 1 to <4 g Fish Oil/Day	62	91.2
Number of Patients Taking ≥4 g Fish Oil/Day	6	8.8
On Concurrent Anticoagulation	2	2.9

*Calculated via rural-urban commuting area (RUCA) codes developed by the Department of Agriculture (USDA) and the Department of Health and Human Services (HHS)

Table 2. Interventions			
	Number of Patients Reached (n = 63)		
	#	% (n = 63)	
Offered Fish Oil Therapy Change Only	41	65.1	% (n = 41)
Accepted Therapy Recommendation	32	50.8	78
Declined Therapy Recommendation	9	14.3	22
		% (n = 63)	
Offered Both Statin AND Fish Oil Therapy Changes	22	34.9	% (n = 22)
Accepted Fish Oil Therapy Recommendation Only	3	4.8	13.6
Declined Fish Oil Therapy Recommendation Only	2	3.2	9.1
Accepted Both Statin and Fish Oil Recommendation	11	17.5	50
Declined Both Statin and Fish Oil Recommendation	6	9.5	27.3

Figure 1. Fish oil deprescribing call script

FISH OIL DEPRESCRIBING SCRIPT

OPENING

Hello, my name is [Name], and I'm calling from the [location] VA. I'm a pharmacy student working with Dr. [pharmacist name] and your primary care team. May I please speak to [patient's name].

Can you confirm the last 4 of your social?

Thank you.

The VA is working to make sure all our Veterans are provided with the best care possible. While performing a review of your chart, we noticed you are taking fish oil for high cholesterol. Are you still taking the fish oil?

After review of your labs, it appears you do not need the fish oil. The current cholesterol guidelines do not recommend using fish oil unless your triglycerides are above 500, and it looks like your triglycerides are [insert value]. Fish oil has not been shown to prevent heart attacks, strokes, and death. In addition to the lack of benefit fish oil provides, there is an increased risk of side effects such as stomach upset and bleeding (especially if on a blood thinner). For these reasons, we would like to stop this medication for you. Would you be open to stopping your fish oil for your high cholesterol?